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Frequency and Use of Medications in Horses Racing at Prairie Meadows

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An analysis was made of the horses racing at Prairie Meadows race track in Altoona, Iowa during 1993 to determine the number of entries designated as racing under the influence of phenylbutazone (ButeRx), furosemide (LasixRx) or both medications. In a total of 1379 Quarter Horse entries, 5.7% raced with no medication, 74.9% raced on phenylbutazone, 0.5% raced on furosemide, and 18.9% raced on both phenylbutazone and furosemide. In a total of 3424 Thoroughbred entries, 2.1% raced under no medication, 43.6% raced on phenylbutazone, 0.4% raced on furosemide, and 53.9% raced on both phenylbutazone and furosemide. Overall, of the 4803 entries, 3.2% raced with no medication, 52.6% raced on phenylbutazone, 0.4% raced on furosemide, and 43.9% raced on both phenylbutazone and furosemide.

Key words: Horses, Phenylbutazone, Furosemide, EIPH

Introduction

In the racing industry, two medications are consistently used, phenylbutazone (ButeRx) and furosemide (LasixRx). These two medications are highly regulated by state racing commissions, and their administration to racing horses, prior to and during a race day, must comply with state racing rules.

Phenylbutazone is a non-steroidal anti-inflammatory agent that acts by inhibiting prostaglandin synthesis, which in turn will decrease an inflammatory response. Specifically, phenylbutazone inhibits the enzyme, cyclooxygenase, which is needed for platelet function and clotting action. In Iowa, racing regulations state that phenylbutazone may not be administered to a horse in dosages that would result in concentrations of more than 2.2 ug/ml of phenylbutazone or its metabolites in the blood.

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This restriction prohibits the administration of phenylbutazone to any entered horse on a race day. In addition, if a horse is to race with phenylbutazone in its system, the trainer must designate on the entry that the horse will race under the influence of phenylbutazone medication. The information is then placed after the horse’s name on the racing card.

Furosemide is a diuretic that is routinely used as a prophylactic medication for exercise-induced pulmonary hemorrhage (EIPH). Exercise-induced pulmonary hemorrhage is a pulmonary vasculature disorder found in over 50 - 70% of horses performing strenuous exercise and is characterized by bleeding in the respiratory tract originating from the lung. A horse that exhibits EIPH is generally termed a “bleeder”. In accordance with Iowa racing regulations, furosemide is administered to a bleeder four hours prior to the scheduled race, at a dose of 250 mg. When a horse races under the influence of furosemide, that information must be noted behind the horse’s name on a racing card.

The etiology of EIPH is still unknown, as well as the mechanism of action for furosemide’s prevention or reduction in severity of an EIPH episode. Two studies have shown that furosemide can reduce right atrial and pulmonary pressures of horses during exercise. It was also found that
when furosemide was administered in addition to cyclooxygenase inhibitors, specifically phenylbutazone or flunixin meglumine, this reduction in right atrial and pulmonary pressures was reversed. Therefore, the study concluded that furosemide may reduce or prevent an EIPH episode by mediating some of its effects through the cyclooxygenase pathway\(^2\).

The objective of this study was to determine the number of horses racing under the influence of medication, specifically phenylbutazone and furosemide. A second objective was to determine the number of horses that exhibited an EIPH episode while racing under the influence of furosemide medication.

**Materials and Methods**

Data was obtained for each day of the 1993 60-day race meet at Prairie Meadows race track in Altoona, Iowa, from the *Daily Racing Form*\(^1\). The number of entered horses was separated into categories designated as racing on no medication, racing on phenylbutazone, racing on furosemide, or racing on both phenylbutazone and furosemide. The information was based on the notation of medication use, found on the racing card behind each horse’s name. Information concerning whether a horse bled through furosemide during a race was obtained from the Iowa State track veterinarian.

**Results**

Our analysis found that there were a total of 4,803 horses entered in 549 races during the 1993 racing season. Of the 4,803 horses, 3,424 horses were Thoroughbreds and 1,379 horses were Quarter Horses. The race meet consisted of 141 Quarter Horse races, 399 Thoroughbred races and 9 Thoroughbred and Quarter Horse mixed races for a total of 549 races.

It was determined that of the 3,424 Thoroughbred entries, 2.1% raced with no medication, 43.6% raced on phenylbutazone, 0.4% raced on furosemide, and 53.9% raced on both phenylbutazone and furosemide. It was also determined that 0.3%, 36.7%, 0.3% and 62.7% of the winning horses in the Thoroughbred races, raced using no medication, phenylbutazone, furosemide, and phenylbutazone and furosemide, respectively.

Of the 1379 entered Quarter Horses, it was determined that 5.7% raced with no medication, 74.9% raced on phenylbutazone, 0.5% raced on furosemide, and 18.9% raced on both phenylbutazone and furosemide. In the 9 Thoroughbred and Quarter Horse mixed races, the winning horse was a Quarter Horse. Therefore, 3.3%, 65.8%, 6% and 30.3% of the winning Quarter Horses raced using no medication, phenylbutazone, furosemide, and phenylbutazone and furosemide, respectively.

During the racing season, 3% of the Quarter Horses and 0.4% of the Thoroughbred horses medicated with furosemide bled during a race. This amounted to eight Quarter Horses and seven Thoroughbreds bleeding through furosemide during a race, as reported by Dr. Gordon, Iowa State track veterinarian\(^3\). Of the Quarter Horses, one horse bled during a race while racing on phenylbutazone, before being medicated with furosemide. The horse subsequently bled again while racing on furosemide, and during both races, placed no greater than sixth. Of the remaining seven Quarter Horses, one horse placed first but was disqualified and placed eighth, three horses placed second, one horse placed third, one horse placed fifth and one horse placed eighth. All eight of the Quarter Horses that bled through the furosemide medication were also racing on phenylbutazone. All of the seven Thoroughbreds that bled during the furosemide medication were also racing on phenylbutazone. Of the seven Thoroughbreds, one horse finished first, one horse finished fifth, two horses finished sixth, one horse finished eighth, one horse finished tenth, and one horse did not finish. In addition, two other horses bled while racing. One horse was racing on no medication and finished fifth, the other horse was racing on phenylbutazone and finished seventh.

**Conclusion**

From this study, it was determined that if a horse was determined to be a bleeder and racing on furosemide medication, the horse would almost always race on phenylbutazone. It was also determined, based on the winning horse of a race, a Quarter Horse racing on phenylbutazone or a Thoroughbred racing on phenylbutazone and furosemide performed better than the horses in the other medication categories or racing on no medication. Overall, 97.5% of the Thoroughbred racing at Prairie Meadows during the 1993 racing season were medicated with phenylbutazone and 54.3% were medicated with furosemide, while 93.8% of the Quarter Horses were medicated with phenylbutazone and 20.4% were medicated with furosemide. This study suggests that more re-
search needs to be conducted concerning the effect racing medications have on exercising horses. In addition, it needs to be determined whether the use of phenylbutazone in conjunction with furosemide in EIPH horses helps prevent the occurrence of an EIPH episode or if the use of phenylbutazone predispose a horse to becoming a bleeder.

References


Prairie Meadows Race Track, Altoona, IA. - Deb Sime
Photos from Prairie Meadows RaceTrack in Altoona, IA - Deb Sime